Section E **Western Avenue Bridge to Boston University Bridge**

The Charles River Reservation between the Western Avenue Bridge and Boston University (BU) Bridge is very narrow, with the exception of Magazine Beach. The River Street and Western Avenue Bridges are both currently in redesign by MassDOT.

Cycle tracks are currently part of the design for both the River Street and Western Avenue Bridges. There is an existing cycle track and bike lane on the Boston side of Western Avenue, and a cycle track is currently under construction for the Cambridge side of Western Avenue (Figure 56).

North Bank. On the Cambridge side of the river, there is a gap in the existing and planned bicycle infrastructure on River Street between the River Street Bridge and Putnam Avenue. There are existing bike lanes on River Street between Putnam Avenue and Central Square, and a planned cycle track on the River Street Bridge. The *Draft Boston Bicycle Master Plan* recommends a cycle track on the Cambridge Street viaduct on the Boston-side approach to the River Street Bridge. Bicycle lanes or shared lane markings are recommended for this section of River Street to close the gap.

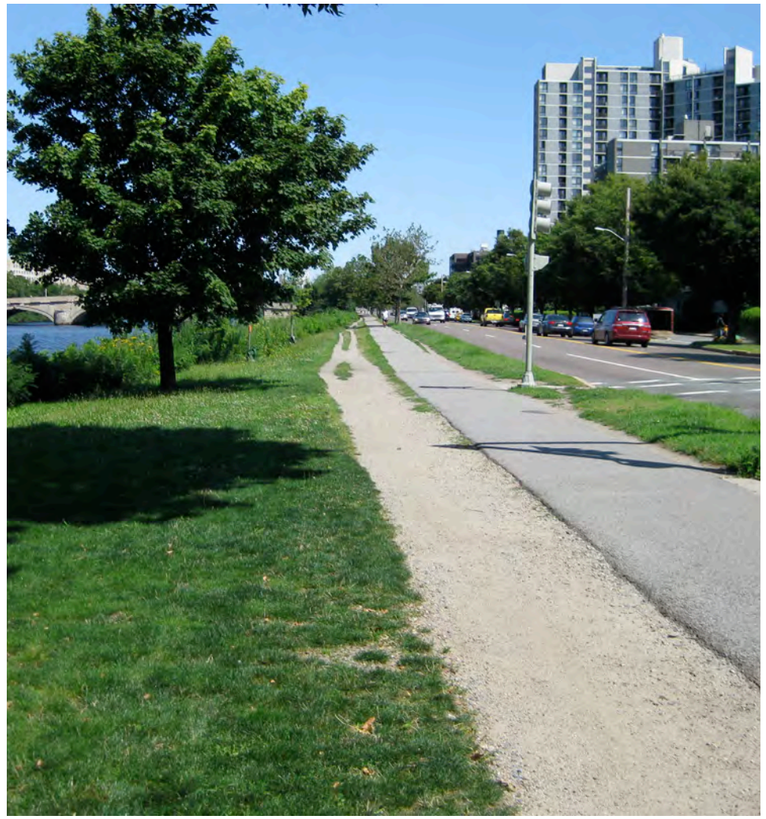
The path between River Street and the BU Bridge is narrow, and should be widened to 10 feet to accommodate the heavy bicycle and pedestrian traffic (Figure 57). There are a number of commercial driveways between Pleasant Street and Magazine Street along both sides of Memorial Drive. Raised crossings should be added to enhance the visibility of the path and to prioritize the path users over the turning motor vehicles.

The City of Cambridge has long-term redevelopment plans for the shopping center between Pleasant Street and Magazine Street. In the short term, bicycle and pedestrian improvements should be made through the parking lot, a portion of which is public right-of-way.

South Bank. The segment of the path on the Boston side, downriver from the River Street Bridge, is extremely narrow and makes two-way bicycle and pedestrian traffic uncomfortable. MassDOT is widening the path as part of the River Street Bridge rehabilitation. However, additional widening is recommended to bring the clear path width to 10 feet. This additional widening may require a cantilever to allow the path to extend over the seawall.

One of the most significant gaps in the path system is the lack of connection from the BU Bridge to the Esplanade below. As the City of Cambridge moves forward with plans for the Grand Junction multi-use path, a connection from the Boston side of the path along the existing rail bridge over the Charles River and the BU Bridge upstream sidewalk is highly recommended. In addition, a sloping path from the end of the rail bridge to the path along the Boston side of the Charles River would provide the long-sought-after link between the river and the BU Bridge.

56. Perspective view of planned one-way cycle track on Western Avenue in Cambridge. Image credit: City of Cambridge and Halvorson Design Partnership.

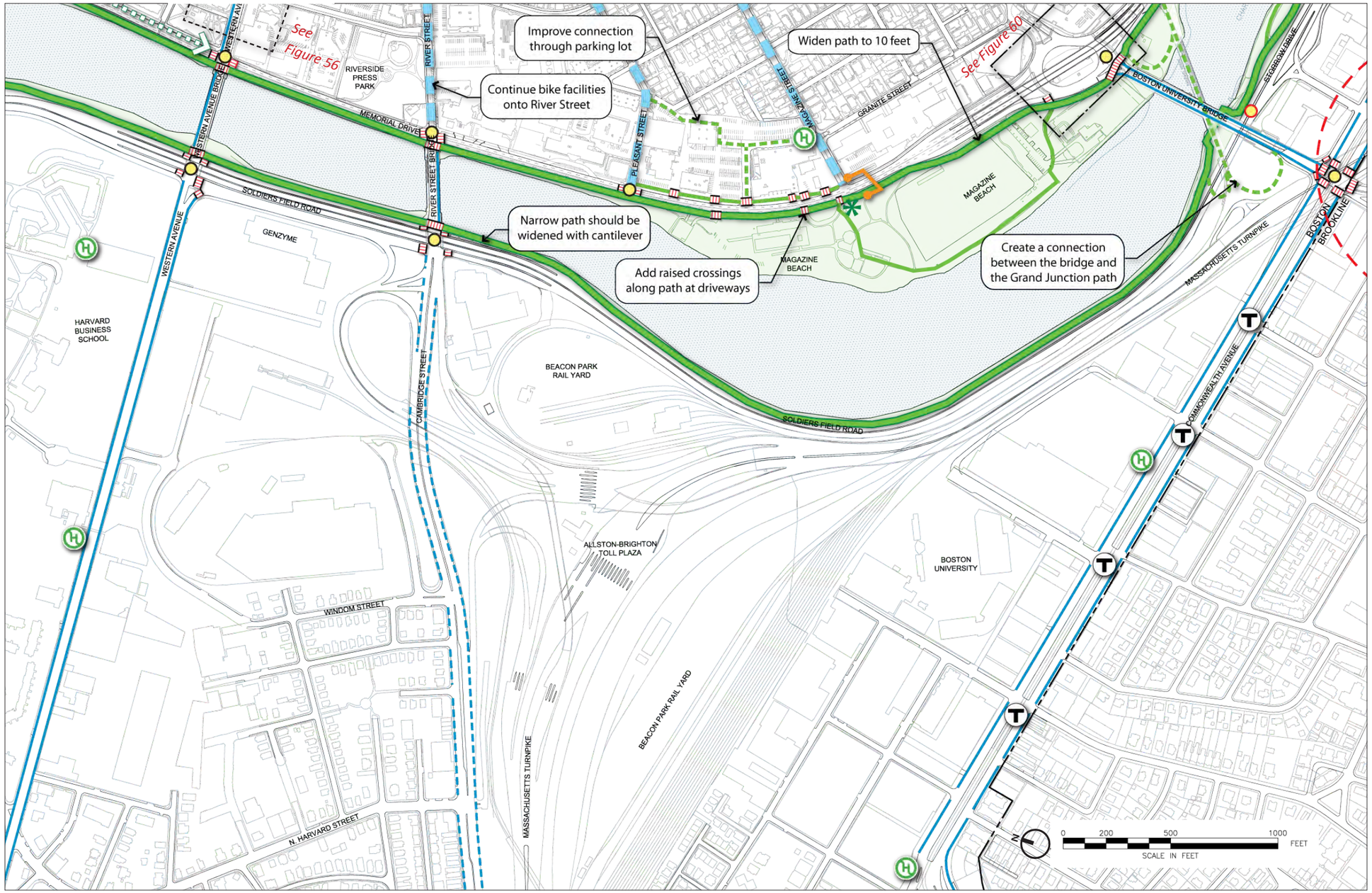


57.Widening the narrow, heavily-used path between the River Street Bridge and the Boston University Bridge is a high priority for this section of the basin.

Figure 58

Recommendations

Section E
Western Avenue Bridge to Boston University Bridge



Legend

- Existing crosswalk, no improvements needed
- Existing crosswalk, needs improvement
- Proposed crosswalk
- Existing/funded signal
- Proposed signal
- Existing ped bridge/overpass
- Proposed ped bridge/overpass
- Existing Hubway station
- Existing/funded bike lane/cycle track
- Proposed bike lane/cycle track
- Existing/funded multi-use path/sidewalk (primary)
- Existing/funded multi-use path/sidewalk (secondary)
- Proposed multi-use path
- New path/landscaping/reduced lanes
- Proposed bike/ped and street-scape improvements within ROW
- Reconfiguration of intersection recommended
- Entry node to the river with art, seating, lighting, landscape elements and small plaza features

Section F **Boston University Bridge to Harvard Bridge**

The reservation between the Boston University (BU) Bridge and the Harvard Bridge (also referred to as the Massachusetts Avenue Bridge) has several opportunities for connections to the immediately adjacent neighborhoods as well as some regional connections.

North Bank. On the Cambridge side of the river, the BU Bridge rotary is currently difficult for bicyclists to negotiate. Bicyclists not only want to access the bridge from the Cambridge side of Memorial Drive, but also the linear path system along the river. Figure 56 shows the addition of green bicycle lanes in the rotary to highlight conflict areas near the ramps. With some curb realignment and the widening of curb ramps, the transition for cyclists from the roadway to the path system will be smoother.

The sidewalk on the river side of Memorial Drive east of the BU Bridge is very narrow considering its use as a two-way shared use path. The recent rehabilitation of the BU Bridge included a curb extension at the Cambridge end of the bridge. This sidewalk should be widened to match the width of the curb extension, and a crash barrier should be added to protect trail users from the Memorial Drive ramp traffic (Figure 59).

Downriver, the existing cycle track on Vassar Street extends to Memorial Drive, although there is no opportunity to cross to the reservation at this intersection. To enhance the connection from the cycle track to the river, Amesbury Street should be improved so that pedestrian and bicyclists can cross at the existing signal. Wayfinding signage and pavement markings can help direct cyclists from the cycle track to Amesbury Street and the river.

Connections to Fort Washington Park in Cambridge should also be improved. The Grand Junction trail will eventually pass along the south side of this park. At this location, there is an existing at-grade crossing of the railroad tracks that ends in a parking lot. Pavement markings can continue this trail through the parking lot so that it can clearly connect to the Vassar Street cycle track. With some improvements on the north side of Fort Washington Park, there can be a connection to Sidney Street and the existing MIT shared-use path. Together, these improvements create a new connection between the Cambridgeport neighborhood and the river.

Another Grand Junction Railroad crossing is proposed in the City of Cambridge Riverfront Plan that would connect the end of Pacific Street to Vassar Street. It is likely that this long-term improvement would be an above-grade crossing.

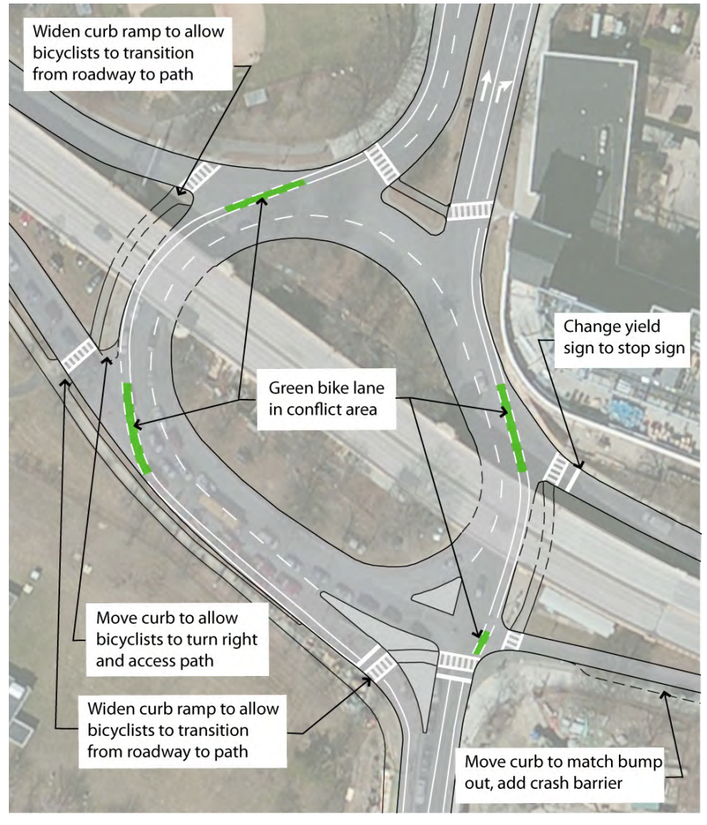
South Bank. On the Boston side of the river, the intersection on the south end of the BU Bridge needs several improvements to become bicycle- and pedestrian-friendly. Currently, there are no curb ramps on the crosswalks that connect from the BU Bridge across Commonwealth Avenue to Essex and Mountfort Streets. Left turns are not permitted for southbound vehicles from the BU Bridge, nor for eastbound vehicles on Commonwealth Avenue, which poses a problem for bicyclists. Motor vehicles are able to use Mountfort Street in lieu of a left turn to or from the bridge. This loop on Mountfort Street is narrow and does not have space for a separated bicycle facility. Two-stage left turn queue boxes are recommended to assist bicyclists wanting to turn from the bridge onto eastbound Commonwealth Avenue or vice versa (see Figure 60).

The feasibility of a signal on Storrow Drive just east of the BU Bridge should be studied. There is clearly a desire line for this crossing as some pedestrians jump multiple crash barriers to cross from the BU Bridge stairway to the Charles River. A signal at this location may be appropriate until the Grand Junction connection can be completed.

59. Widened sidewalk and improved crosswalks along Memorial Drive east of the BU Bridge (existing + proposed).

There are no at-grade crossings between the path system and the adjacent Boston University campus between the BU Bridge and the Harvard Bridge. There are two overpasses that make this connection; however, the overpass behind BU's Mugar Library is only accessible by stair. This overpass should be reconstructed to be ADA-compliant and allow bicycle access.

The second overpass near Silber Way does have ramps, but is difficult for bicyclists on Commonwealth Avenue or Bay State Road to find. The addition of bicycle facilities and wayfinding signage on Silber Way would enhance this connection.

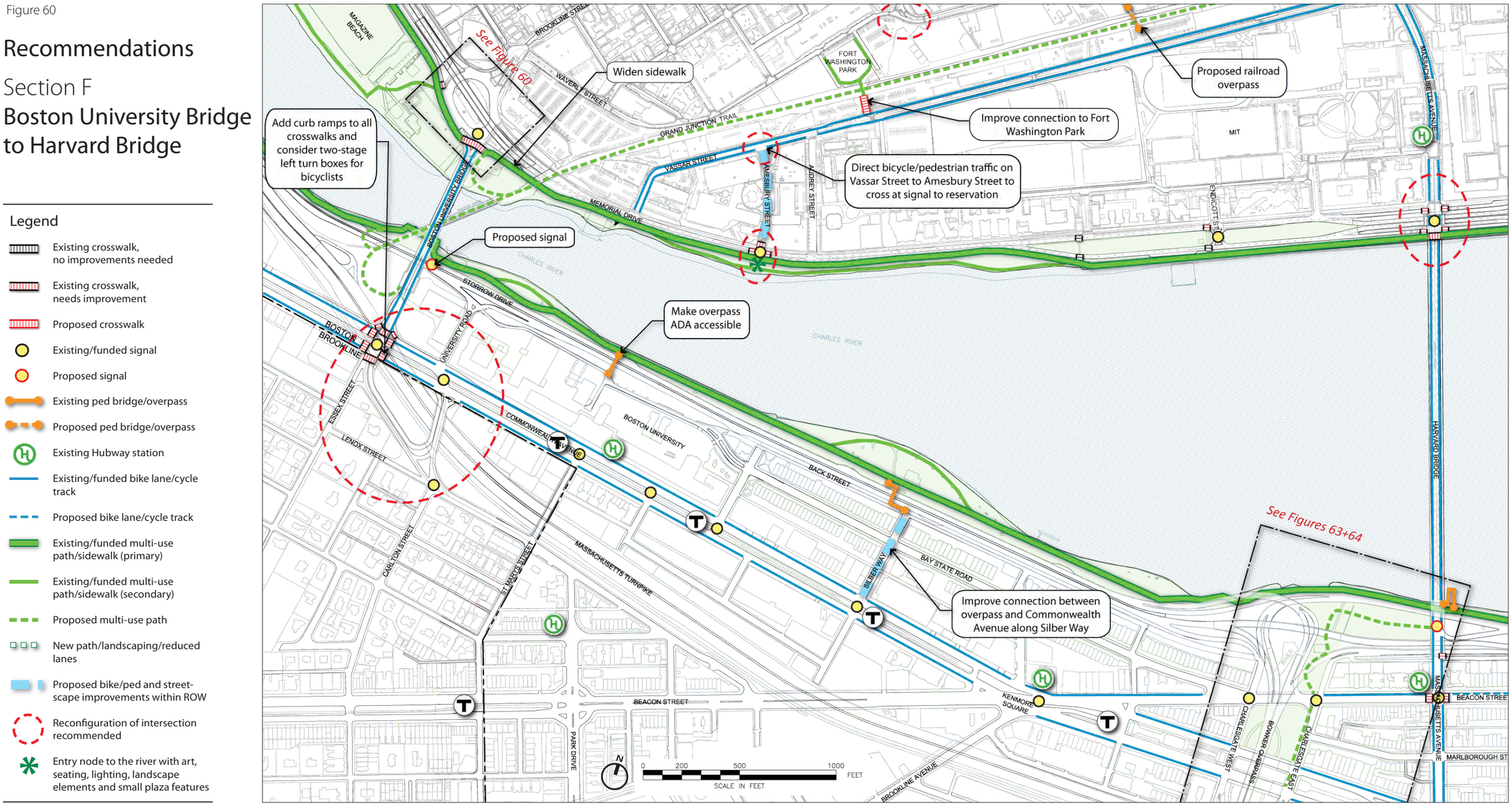


60. Detail of BU Bridge Rotary improvements to enhance Cambridgeport connection to the bridge.

Figure 60

Recommendations

Section F
Boston University Bridge to Harvard Bridge



Legend

- Existing crosswalk, no improvements needed
- Existing crosswalk, needs improvement
- Proposed crosswalk
- Existing/funded signal
- Proposed signal
- Existing ped bridge/overpass
- Proposed ped bridge/overpass
- Existing Hubway station
- Existing/funded bike lane/cycle track
- Proposed bike lane/cycle track
- Existing/funded multi-use path/sidewalk (primary)
- Existing/funded multi-use path/sidewalk (secondary)
- Proposed multi-use path
- New path/landscaping/reduced lanes
- Proposed bike/ped and street-scape improvements within ROW
- Reconfiguration of intersection recommended
- Entry node to the river with art, seating, lighting, landscape elements and small plaza features

Section F **Boston University Bridge to Harvard Bridge** continued

South Bank at Charlesgate. Like the path system around the Charles River Basin, the Emerald Necklace path system provides far-reaching bicycle and pedestrian connections, linking many neighborhoods in the cities of Boston and Brookline. Charlesgate is the link between these two path systems, which was severed by the Bowker Overpass. The recommended route through Charlesgate is shown in Figure 61. To provide an adequate connection, the existing crossing of Boylston Street should be improved with high-visibility crosswalks and wayfinding signage. The northbound Bowker Overpass roadway is excessively wide for two travel lanes. By narrowing the roadway, the sidewalk can be widened to a 12-foot shared-use path with a crash barrier. The path can follow the exit ramp down to Charlesgate East. The total roadway width narrows here, making it difficult to fit two travel lanes and a 12-foot path. A traffic study is recommended to determine the appropriate queuing distance for the ramp/Commonwealth Avenue intersection, to see if a partial lane reduction is possible on the ramp. Where two lanes are required for queuing, the shared-use path should maintain a minimum width of 8 feet.

At the Commonwealth Avenue eastbound intersection, the recommended route crosses to the east side of Charlesgate East, to connect with the west end of the Commonwealth Avenue Mall path. At the Commonwealth Avenue westbound intersection, the proposed path crosses back to the west side of Charlesgate East and follows a widened sidewalk to the Beacon Street intersection (Figure 63). Here, a new crosswalk from a traffic island will allow pedestrians and cyclists to cross Beacon Street and avoid left-turning traffic, in a plan developed by the Solomon Foundation in conjunction with DCR and the Connectivity Study team. The proposed path continues north from here, traveling under a Bowker Overpass ramp, past the Charlesgate Gatehouse, around a retaining wall, and up a previously-isolated piece of parkland to the Harvard Bridge. With some modifications to the existing bridge railing, this path can connect to the inbound bridge sidewalk and to a proposed signalized crossing. In the long term, a new pedestrian and bicycle bridge is recommended on the west side of the Harvard Bridge that will connect directly to the Esplanade Path.

A preliminary analysis considered the effects of installing or modifying signalized crossings at the intersections of the Harvard Bridge/Storrow Drive exit ramp and Charlesgate East/Beacon Street. These crossing locations will be critical to accommodate pedestrian and bicycle access and safety as part of the proposed shared-use path. The potential path alignment runs through DCR parkland between the east- and west-bound traffic lanes of Storrow Drive from the Harvard Bridge to the Bowker Overpass. The full preliminary analysis can be found in the appendix of this report. More detailed analysis will be required before moving forward with this proposal.

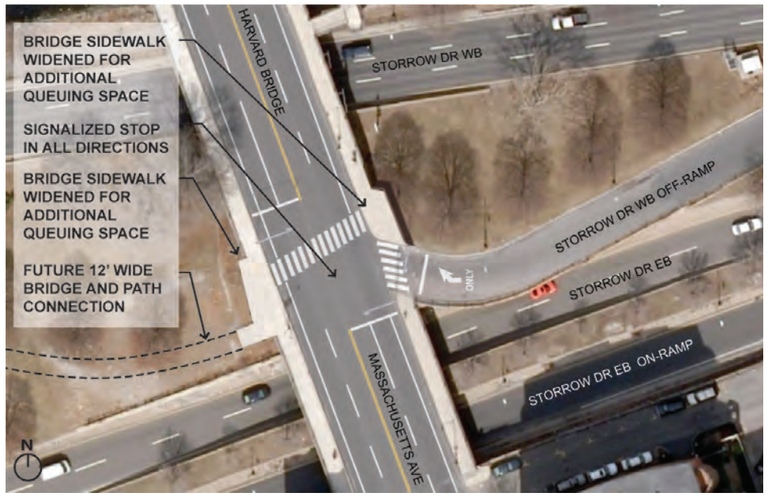
62. Existing and proposed view of Charlesgate connection on the Bowker Overpass

63. Plan of Charlesgate connection from Back Bay Fens to the river.

64. Detail of proposed path from Beacon Street to the Harvard Bridge (image: the Solomon Foundation).

65. Existing and proposed view of new Charlesgate path connection in the wide median of Storrow Drive.

Harvard Bridge Signal Recommendations: At the Storrow Drive westbound exit to the Harvard Bridge, a signalized intersection would allow pedestrians and cyclists to cross safely and efficiently on the Harvard Bridge while moving between the Muddy River and the Esplanade. Two alternatives were analyzed. Alternative 1 (Figure 66) proposes a crossing north of the Storrow Drive exit ramp while alternative 2 (Appendix) places the crossing south of the exit ramp. Alternative 1 is recommended, as it provides for the crossing of Massachusetts Avenue in a single stage that is most in line with the pedestrian desire line. Alternative 2 would involve a two-stage crossing that would require a crossing in front of a Storrow Drive exit ramp and a widened sidewalk to create a queuing area for pedestrians and cyclists waiting for the signal.



66. Harvard Bridge/Storrow Drive exit ramp crossing (Alternative 1):

Pedestrians and cyclists coming from the path system cross the Harvard Bridge north of the Storrow Drive exit ramp, an alignment that is more consistent with the desired route of travel for pedestrians and cyclists, many of whom are likely to seek access the ramp to the Esplanade. (Alternative 2 for this location is shown in Appendix A.)

Charlesgate East at Beacon Street: A new path through the DCR property between the Bowker Overpass and the Harvard Bridge would create far more demand from pedestrians and bicyclists – especially those coming from the Back Bay Fens and the Emerald Necklace – to cross Beacon Street via an enhanced path adjacent to the Muddy River. Two crossing alternatives were analyzed. Alternative 1 (see Appendix) maintains the left-turn slip lane and island, while Alternative 2 (Figure 67) replaces the left-turn slip lane and island with a left-turn lane. Alternative 1 is less favorable for pedestrians and cyclists because it requires a two-stage crossing - from the sidewalk and path adjacent to the Muddy River to the left-turn island, and across Beacon Street. Alternative 2 provides a single-stage crossing of Beacon Street with recommended signal phasing that would hold all left turns during this phase.

67. Charlesgate East / Beacon Street crossing (Alternative 2):

By eliminating the left-turn slip lane and traffic island, pedestrians and cyclists are able to cross Beacon Street in a single stage with minimal impacts to the Level of Service at the intersection. (Alternative 1 for this location is shown in Appendix A.)